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ABSTRACT

The Myers Briggs Type Indicator (MBTI) was used to identify simililarities and significant differences in the learning style preferences of secondary students from two cultures. A second purpose of the study was to identify gender differences in learning style within and across these two cultures. A total of 103 African Americans from a high school in Birmingham (Alabama) and 175 Native Americans from Cherokee (North Carolina) participated. Type tables were created using the Selection Ratio Type Table procedure developed by the Center for the Application of Psychological Type. Chi square tests were used to assess significant differences, with Fisher's exact test substituted when cell sizes were too small. There were significant differences in the learning style preferences of African American and Native American students. African American males and females demonstrated a strong preference for the sensing and judging dimensions, while Native American males and females indicated a preference for intuition and perception. In both populations, females indicated a much stronger preference for feeling. It appears that culture is a major determinant of learning style, with gender also a factor. However, each cultural group demonstrated a variety of learning style characteristics, suggesting that not all members of the culture could be characterized the same way. Attachments provide summaries of the different learning preferences. (Contains 7 tables and 25 references.) (SLD)

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LEARNING STYLE PREFERENCES OF NATIVE AMERICAN AND AFRICAN-AMERICAN SECONDARY STUDENTS AS MEASURED BY THE MBTI

Presentation at MSERA

November 6, 1996

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An individual's personality type as measured by the Myers-Briggs Type Indicator (MBTI) helps determine the way he or she learns or reacts to new information. Moreover, personality type can be influenced by culture. These assertions come to life in school settings. We need only to observe in the typical classroom to see evidence of different personality-related and culturally influenced approaches to learning. The energy of some students in class might come from internal thoughts and feelings (Introverts), and the other students might be stimulated externally by interactions with others (Extraverts). In the same class, we might see learners who are practical, concrete, sequential, and structure-seeking (Sensing types), as well as learners who theorize about multiple possibilities and who do not particularly want practicality or structure (Intuitives). In making decisions, some students in class might use logical thinking and analysis (Thinkers), while other students might employ feelings or values (Feelers). We might also see in the class both rapid decision-makers (Judgers) and more relaxed, playful students who dislike quick closure (Perceivers).

Personality type as assessed by the MBTI can be very useful in examining learning styles in the classroom (Lawrence, 1984; Oxford, 1996; Oxford, Hollaway & Murillo, 1992).

Research suggests that students' cultural background plays an important part in the learning process (Banks, 1991; Cuban, 1989; Lam-Phoon, 1985; More; 1987; Worthley, 1982). "Cultural patterns are an interrelated, interwoven, and virtually inseparable group or cluster of traits that taken together, produce an established and typical result such as thinking, living, and acting" (p. 65). With growing diversity in the school population, it is especially important for the teacher to recognize cultural differences at work in the learning of individual students. This recognition is crucial if educational systems are to provide every student the opportunity to reach his or her potential.

Using a variety of inventories, numerous studies (Cheung, 1985; McMurren, 1985; Oxford & Anderson, 1995; Reid, 1987) demonstrate cultural differences in learning style. The present study was conducted because of the need to further investigate the role of culture in helping to shape learning style preferences. The MBTI was chosen because of its worldwide acceptance, and its relatively frequent use in studies of learning (Erhman & Oxford, 1989, 1990, 1995, Myers & McCaulley). 1985; Oxford & Erhman, 1988). The MBTI reveals preferences along four dimensions: a) extroversion-introversion, b) sensing-intuition, c) feeling-thinking, and d) judging perceiving.

Combinations of these dimensions lead to 16 types that are described by the MBTI. These combinations make up the dynamics of personalty type which are indicative of learning style.

The purpose of the current study was to use the MBTI to identify similarities and significant differences in the learning style preferences of secondary students from two cultures: Native American and African-American. A second purpose was to pinpoint gender differences in learning style occurring within and across these two cultures. A total of 278 secondary students were selected for the research, 103 African-Americans and 175 Native Americans. The African-Americans attended Carver High School in Birmingham, Alabama and the Native American population attended Cherokee High School in Cherokee, North Carolina.

In order to test the assumption that learning style differences might occur between cultural groups and genders, type tables were created using the Selection Ratio Type Table (SRTT) procedure of the Center for the Application of Psychological Type (CAPT). Chi square tests were used to assess significant differences. In those few instances where cell sizes were too small, the Fisher's exact test was substituted.

Findings indicated that there were significant differences in the learning style preferences of African-American and Native American secondary students. Both African-American males and females demonstrated a strong preference for the sensing and judging dimensions, whereas Native American males and females indicated a preference for intuition and perception. There were

also definite differences in males and females in both populations as to the degree of preference for the feeling or thinking dimensions. Females indicated a much stronger preference for feeling as compared to males.

From an analysis of the findings of this study, it appears that culture is a major determinant of learning style. Sex is also indicated as a factor in learning style as well. However, despite these findings, it is important to note that there were "with-in group" differences as well as "between group" preferences. Each cultural group demonstrated a variety of learning style characteristics, suggesting that all could not be classified as one personality type or learning style. Therefore, no one should arbitrary attribute a particular learning style to all individuals within a group.

The findings of this study imply that it is necessary to provide instructional approaches responsive to all students. Although the relationship between learning style and culture is deceptively simple, the issues around it are complex. Teachers must note the learning style differences between cultural groups but must also pay attention to the styles of individual learners.

Greater understanding would facilitate more communication in the classroom and increase student interest and achievement. To learn about style differences, teachers require inservice and preservice training. Teachers need to find out about their own learning styles, determine the extent to which their teaching styles are influenced by their learning styles, and find out how

to adapt their teaching styles to the needs of individual students or groups.

Addressing individual and group differences in learning styles is essential for effective and learning. It is no longer possible to deny the existence of variations among culturally diverse students and among males and females. Useful models and approaches, such as those of Banks (1991,1994), Bartz and Miller (1991), Claxton and Murrell (1987), Cornett (1983), Dunn and Griggs (1988), and McCarthy (1987), Putsch (1986), and Aabel (1991), can help the teacher operate within the framework of equal respect for students, regardless of their learning styles.

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SUMMARIES OF THE LEARNING PREFERENCES

HOW THE E AND I PREFERENCES AFFECT LEARNING

EXTRAVERSION

Cognitive style: The extraversion preference is associated with a cognitive style that favors:

- learning by talking and physically engaging the environment,
- letting attention flow outward toward objective events,
- talking to help thoughts to form and become clear,
- learning through interactions, verbal and non-verbal.

Study style: The extraversion preference is associated with a study style that favors:

- acting first, reflecting after,
- plunging into new material,
- starting interactions needed to stimulate reflection and concentration,
- having a strong, interesting, external-extraverted reason for studying, beyond learning for its own sake,
- avoiding distractions that will cut into their concentration,
- studying with a friend,
- studying to prepare to teach someone.

Instruction that fits Es: The extraverting types do their best work with:

- opportunities to "think out loud": for example, one-to-one with the teacher, classroom discussions, working with another student, action projects involving people,
- learning activities that have an effect outside the learner, such as visible results from a project,
- teachers who manage classroom dialogue so that extraverts have ways to clarify their ideas before they add them to class discussion,
- assignments that let them see what other people are doing and what they regard as important.

INTROVERSION

Cognitive style: The introversion preference is associated with a cognitive style that favors:

- quiet reflection,
- keeping one's thoughts inside until they are polished,
- letting attention flow inward,
- being engrossed in inner events: ideas, impressions, concepts,
- learning in private, individual ways.

Study style: The introversion preference is associated with a study style that favors:

- reflecting first, acting after (if necessary),
- looking for new data to fit into the internal dialogue that is always going on,
- working privately — perhaps checking one's work with someone who is trusted,
- reading as the main way of studying,
- listening to others talk about the topic being studied, and privately processing what they take in,
- extraverting just when they choose to.

Instruction that fits Introverts: Introverts like learning situations that let them:

- work internally with their own thoughts: listening, observing, lab work, reading, writing,
- process their experiences at their own pace,
- present the results of their work in forms that let them keep their privacy,
- have ample time to polish their work before needing to present it,
- have time to reflect before answering the teacher's questions,
- tie their studies to their own personal interests, their internal agenda.

HOW THE S AND N PREFERENCES AFFECT LEARNING

SENSING

Cognitive style: The sensing preference is associated with a cognitive style that favors:

- memory of facts.
- observing specifics.
- processing data step by step.
- starting with the concrete, then moving to abstract.
- being careful and thorough.
- aiming toward soundness of understanding.
- staying connected to practical realities around them.
- being attentive to what is in the present moment.

Study style: The sensing preference is associated with a study style that favors:

- a sequential, step by step approach to new material.
- beginning with familiar, solid facts.
- moving gradually toward abstract concepts and principles.
- approaching abstract principals and concepts by distilling them out of their own personal, concrete experience.

Instruction that fits Ss: Ss do best with instruction that allows them to hear and touch as well as see (or only read about) what they are learning. They like:

- hands-on labs.
- relevant films and other audio-visual presentations.
- materials that can be handled.
- computer-assisted instruction.
- first-hand experience that gives practice in the skills and concepts to be learned.
- teachers who provide concrete learning experiences first in any learning sequence, before using the textbook.
- teachers who show them exactly what is expected of them.
- teachers who do not move "too quickly" through material, touching just the high spots or jumping from thought to thought.
- assignments that do not expect them to generate possibilities not based on solid facts.
- skills and facts they can use in their present lives.

Being naturally observant of details in the here and now, they tend to overlook the big picture, general meanings, and implications for the future.

They believe the adult world has specific skills and facts they should be taught, and they are disappointed in any teacher who expects them to discover them for themselves.

INTUITION

Cognitive style: The intuition preference is associated with a cognitive style that prefers:

- being caught up in inspiration.
- moving quickly in seeing associations and meanings.
- reading between the lines.
- relying on insight more than careful observation.
- relying on verbal fluency more than memory of facts.
- focusing on general concepts more than details and practical matters.

Study style: Intuitives typically adopt a study style that includes:

- following inspirations.
- jumping into new material to pursue an intriguing concept.
- finding their own way through new material, from concept to concept.
- attending to details only after the big picture is clear.
- exploring new skills rather than honing present ones.
- reading.

Instruction that fits Ns: The intuitive types do their best work with:

- learning assignments that put them on their own initiative, individually or with a group.
- real choices in the ways they work out their assignments.
- opportunities to find their own ways to solve problems.
- opportunities to be inventive and original.
- opportunities for self-instruction, individually or with a group.
- a system of individual contracts between teacher and students.

Intuitive types like beginnings a lot more than endings, because beginnings are filled with the fascination of new possibilities. When they have study assignments they can be enthusiastic about, they are much more likely to carry them to the finish line.

In high school and beyond, they generally like experiences rich with complexities, which may include stimulating lectures.

After a concept or skill is understood to their satisfaction, they may find continued practice boring, shift over to new inspirations, and never achieve complete mastery.

They get frustrated with the teacher who paces instruction "too slowly."

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HOW THE T AND F PREFERENCES AFFECT LEARNING

THINKING

Cognitive style: The thinking preference is associated with a cognitive style that favors:

- making impersonal judgments, aiming toward objective truth.
- keeping mental life ordered by logical principles.
- analyzing experiences to find logical principles underlying them.
- staying free from emotional concerns while making decisions.
- naturally critiquing things, aiming toward clarity and precision.

Study style: Thinking types typically adopt a study style that includes:

- having objective material to study.
- compartmentalizing emotional issues to get clear thinking on the task at hand.
- analyzing problems to bring logical order out of confusion.
- wanting to get a sense of mastery over the material being studied.

Instruction that fits Ts: The thinking types do their best work with:

- teachers who are logically organized.
- subjects and materials that flow logically and respond to logic.
- feedback that shows them their specific, objective achievements.

FEELING

Cognitive style: The feeling preference is associated with a cognitive style that favors:

- making value judgments concerning human motives and personal values.
- attending to relationships.
- personalizing issues and causes they care about.
- staying tuned to the quality of the subjective tone of relationships and seeking harmony in relationships.
- attending to the quality of their own emotional life.
- naturally appreciating people and their accomplishments.

Study style: Feeling types typically adopt a study style that includes:

- learning through personal relationships rather than impersonal individualized activities.
- learning by helping and responding to other people's needs.
- studying with a friend.
- wanting to choose topics to study that they care deeply about.

Instruction that fits Fs: The feeling types do their best work with:

- teachers who value a personal rapport with students.
- assignments that have a goal of helping people.
- feedback that shows warm appreciation for the student and his or her effort, and gives corrective suggestions in that context.
- personalized asssignments.

HOW THE J AND P PREFERENCES AFFECT LEARNING

JUDGMENT

Cognitive style: The judging preference is associated with a cognitive style that favors:

- having a clear structure in a learning situation from the beginning,
- aiming toward completions and getting closure,
- having life organized into an orderly plan.

Study style: Judging types typically adopt a study style that includes:

- planful and scheduled work, drawing energy from the steady, orderly process of doing their work,
- wanting to know exactly what they are accountable for and by what standards they will be judged,
- treating assignments as serious business, and persisting in doing them.

Instruction that fits Js: The judging types do their best work with:

- pre-planned structure, and a teacher who carefully provides it,
- predictability and consistency,
- formalized instruction that moves in orderly sequences,
- prescribed tasks,
- milestones, completion points, with little ceremonies to honor successful completions.

PERCEPTION

Cognitive style: The perceiving preference is associated with a cognitive style that favors:

- open exploration without a pre-planned structure,
- staying open to new experience,
- managing emerging problems with emerging structures,
- the stimulation of something new and different.

Study style: Perceiving types typically adopt a study style that includes:

- spontaneously following their curiosity,
- studying when the surges of impulsive energy come to them,
- studying to discover something new to them,
- finding novel ways to do routine assignments so as to spark enough interest to do the assignments.

Instruction that fits Ps: The perceiving types do their best work when:

- they can pursue problems in their own way,
- they have genuine choices in assignments, as with a system of individual contracts in which the student can negotiate some of the activities,
- assignments make sense to them,
- their work feels like play.

Table 1

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American N = 103			Native American N = 175		
Type	N	%	I	N	%	I
E	71	68.93	1.22"	99	56.57	0.82"
I	32	31.07	0.72"	76	43.43	1.40"
S	90	87.38	1.44*	106	60.57	0.69*
N	13	12.62	0.32*	69	39.43	3.12*
T	68	66.02	0.95	121	69.14	1.05
F	35	33.98	1.10	54	30.86	0.91
J	52	50.49	2.21*	40	22.86	0.45*
P	51	49.51	0.64*	135	77.14	1.56*

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 2

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American N=103			Native American N=175		
Type	N	%	I	N	%	I
ISTJ	3	2.91	0.39	13	7.43	2.55
ISFJ	7	6.80	1.98	6	3.43	0.05
INFJ	1	0.97	1.70	1	.57	0.59
INTJ	1	0.97	0.57	3	1.71	1.77
ISTP	13	12.62	0.85	26	14.86	1.18
ISFP	6	5.83	1.13	9	5.14	0.88
INFP	0	0.00	0.00"	7	4.00	0.00"
INTP	1	0.97	0.15	11	6.29	6.47
ESTP	16	15.53	0.97	28	16.00	1.03
ESFP	9	8.74	1.70	9	5.14	0.59
ENFP	3	2.91	0.39	13	7.43	2.55
ENTP	3	2.91	0.16*	32	18.29	6.28*
ESTJ	30	29.13	6.37*	8	4.57	0.16*
ESFJ	6	5.83	1.46	7	4.00	0.69
ENFJ	3	2.91	2.55	2	1.14	0.39
ENTJ	1	0.97	0.00	0	0.00	0.00

Note concerning symbols following the selection ratios:
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implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 3

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American Females N = 88			Native American Females N = 63		
Type	N	%	I	N	%	I
E	43	68.25	1.09	55	68.50	0.92
I	20	31.75	0.85	33	37.50	1.18
S	53	84.13	1.51*	49	55.68	0.66*
N	10	15.87	0.36*	39	44.32	2.79*
T	34	53.97	0.97	49	55.68	1.03
F	29	46.03	1.04	39	44.32	0.96
J	32	50.79	2.13*	21	23.86	0.47*
P	31	49.21	0.65*	67	76.14	1.55*

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 4

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American Females N=63			Native American Females N=88		
Type	N	%	I	N	%	I
ISTJ	1	1.59	0.28	5	5.68	3.58
ISFJ	6	9.52	1.68	5	5.68	0.60
INFJ	1	1.59	0.00	0	0.00	0.00
INTJ	0	0.00	0.00	1	1.14	0.00
ISTP	6	9.52	0.93	9	10.23	1.07
ISFP	5	7.94	1.40	5	5.68	0.72
INFP	0	0.00	0.00	4	4.55	0.00
INTP	1	1.59	0.35	4	4.55	2.86
ESTP	8	12.70	1.02	11	12.50	0.98
ESFP	6	9.52	1.40	6	6.82	0.72
ENFP	3	4.76	0.35	12	13.64	2.68
ENTP	2	3.17	0.17#	16	18.18	5.73#
ESTJ	16	25.40	7.45*	3	3.41	0.13*
ESFJ	5	7.94	1.40	5	5.68	0.72
ENFJ	3	4.76	2.10	2	2.27	0.48
ENTJ	0	0.00	0.00	0	0.00	0.00

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 5

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American N = 40			Native American N = 87		
Type	N	%	I	N	%	I
E	25	70.00	1.38"	44	50.57	0.72"
I	12	30.00	0.61"	43	49.43	1.65"
S	37	92.50	1.41#	57	65.52	0.71#
N	3	7.50	0.22#	30	34.48	4.60#
T	34	85.00	1.03	72	82.76	0.97
F	6	15.00	0.87	15	17.24	1.15
J	20	50.00	2.29#	19	21.84	0.44#
P	20	50.00	0.64#	68	78.16	1.56#

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 6

A Comparison of African-American and Native American Students by One-Letter Preferences

	African-American Males N=40			Native American Males N=87		
Type	N	%	I	N	%	I
ISTJ	2	5.00	0.54	8	9.20	1.84
ISFJ	1	2.50	2.18	1	1.15	0.46
INFJ	0	0.00	0.00	1	1.15	0.00
INTJ	1	2.50	1.09	2	2.30	0.92
ISTP	7	17.50	0.90	17	19.54	1.12
ISFP	1	2.50	0.54	4	4.60	1.84
INFP	0	0.00	0.00	3	3.45	0.00
INTP	0	0.00	0.00	7	8.05	0.00
ESTP	8	20.00	1.02	17	19.54	0.98
ESFP	3	7.50	2.18	3	3.45	0.46
ENFP	0	0.00	0.00	1	1.15	0.00
ENTP	1	2.50	0.14"	16	18.39	7.36"
ESTJ	14	35.00	6.09*	5	5.75	0.16*
ESFJ	1	2.50	1.09	2	2.30	0.92
ENFJ	0	0.00	0.00	0	0.00	0.00
ENTJ	1	2.50	0.00	0	0.00	0.00

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

Table 7

A Comparison of African-American and Native American Students by One-Letter Preferences

	Males N=127			Females N=151		
Type	N	%	I	N	%	I
E	72	56.69	0.87	98	64.90	1.14
I	55	43.31	1.23	53	35.10	0.81
S	94	74.02	1.10	102	67.55	0.91
N	33	25.98	0.80	49	32.45	1.25
T	106	83.46	1.52*	83	54.97	0.66*
F	21	16.54	0.37*	68	45.03	2.72*
J	39	30.71	0.87	53	35.10	1.14
P	88	69.29	1.07	98	64.90	0.94

Note concerning symbols following the selection ratios:
" implies significance at the .05 level, i.e., Chi-square > 3.8;
implies significance at the .01 level, i.e., Chi-square > 6.6;
* implies significance at the .001 level, i.e., Chi-square > 10.8.

The findings indicated the following:

1. The strongest preference in the total African-American sample was for the sensing dimension while the Native Americans' strongest preference was for the perceiving dimension.

2. A comparison of females in the African-American and Native American sample indicated that African-American females demonstrated a preference for the sensing dimension while the female Native Americans' strongest preference was for the perceiving dimension.

3. A comparison of African-American and Native American males indicated that African-American males preferred the sensing dimension while the male Native Americans' demonstrated a preference for the perceiving dimension.

4. African-American females and males differed in their preferences toward the thinking and feeling dimensions. The females were more feeling in preference whereas males preferred the thinking dimension.

5. Native American females and males differed in their preferences toward the thinking and feeling dimensions. The females were more feeling in preference whereas males preferred the thinking dimension.

6. A comparison of all African-American and Native American females to African-American and Native American males indicated that females were more feeling oriented as compared males.

SUGGESTIONS FOR ADDRESSING LEARNING STYLE PREFERENCES

1. Assess the learning style preferences of the teacher and student.
2. Use more than one instrument to assess learning style preference.
3. Instruct future teachers how to implement strategies to address different learning styles.
4. Provide a myriad of activities to address the learning styles of all students within one lesson.
5. Provide activities with different types of groupings.
6. Use peer tutoring.
7. Encourage changes in students' behavior and foster guided style stretching.
8. Match teachers and students according to learning styles.
9. Improve the physical setting (reflect the personalities of students in the classroom).
10. Change the way style conflicts are viewed.
11. Prepare a learning environment that welcomes and accommodates a variety of styles.
12. Additional research on learning styles.
13. Follow up with workshops with teachers and students at research sites.